Missouri Department of Natural Resources

PUBLIC NOTICE

DRAFT MISSOURI STATE OPERATING PERMIT

DATE: December 3, 2004

In accordance with the state Clean Water Law, Chapter 644, RSMo, Clean Water Commission regulation 10 CSR 20-6.010, and the federal Clean Water Act, the applicants listed herein have applied for authorization to either discharge to waters of the state or to operate a no-discharge wastewater treatment facility. The proposed permits for these operations are consistent with applicable water quality standards, effluent standards and/or treatment requirements or suitable timetables to meet these requirements (see 10 CSR 20-7.015 and 7.031). All permits will be issued for a period of five years, unless noted otherwise in the Public Notice for that discharge.

On the basis of preliminary staff review and the application of applicable standards and regulations, the Missouri Department of Natural Resources (MDNR), as administrative agent for the Missouri Clean Water Commission, proposes to issue a permit(s) subject to certain effluent limitations, schedules, and special conditions. The proposed determinations are tentative pending public comment.

Persons wishing to comment on the proposed permit conditions are invited to submit them in writing to the Department of Natural Resources, St. Louis Regional Office, 7545 South Lindbergh, Suite 210, St. Louis, Missouri 63125, ATTN: Thomas M. Siegel, Chief, Permits and Engineering. Please include the permit number in all comment letters.

Comments should be confined to the issues relating to the proposed action and permit(s) and the effect on water quality. The MDNR may not consider as relevant comments or objections to a permit based on issues outside the authority of the Clean Water Commission, (see Curdt v. Mo. Clean Water Commission, 586 S.W.2d 58 Mo. App. 1979).

All comments must be postmarked by January 2, 2005, or received in our office by 5:00 p.m. on January 5, 2005. The requirement of a signed document makes it impossible to accept email comments for consideration at this time. Comments will be considered in the formulation of all final determinations regarding the applications. If response to this notice indicates significant public interest, a public meeting or hearing may be held after due notice for the purpose of receiving public comment on the proposed permit or determination. Public hearings and/or issuance of the permit will be conducted or processed according to 10 CSR 20-6.020.

Copies of all draft permits, comments, and other information including copies of applicable regulations are available for inspection and copying at DNR's website, www.dnr.state.mo.us/wpscd/wpcp/homewpcp.htm, or at the Department of Natural Resources, St. Louis Regional Office, 7545 South Lindbergh, Suite 210, St. Louis, Missouri 63125, between the hours of 8:00 a.m. and 5:00 p.m., Monday through Friday.

Public Notice Date: December 3, 2004
Permit Number: MO-0131024
St. Louis Regional Office

FACILITY NAME AND ADDRESS	NAME AND ADDRESS OF OWNER
HSSC, Yorktown WWTF Carol Park Road House Springs, MO 63051	House Springs Sewer Company 3730 Country Club Drive Imperial, MO 63052
RECEIVING STREAM & LEGAL DESCRIPTION	**TYPE OF DISCHARGE**
Bear Creek (Unclassified) Bear Creek (P) Sec. 26, T43N, R4E, Jefferson County	Domestic, new

Plans and specifications for this facility have not been reviewed by the Department of Natural Resources. The design engineer, a registered Missouri professional engineer, has certified that the plans and specifications meet all requirements of 10 CSR 20-Chapter 8 Waste Treatment Design.

STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION

MISSOURI STATE OPERATING PERMIT

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No.	MO-0131024
Owner:	House Springs Sewer Company (HSSC)
Address:	3730 Country Club Drive, Imperial, MO 63052
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	HSSC, Yorktown Wastewater Treatment Facility
Facility Address:	Carol Park Road, House Springs, MO 63051
Legal Description:	SW ¼, NE ¼, SW ¼, Sec. 26, T43N, R4E, Jefferson County
Receiving Stream:	Bear Creek (U)
First Classified Stream and ID:	Bear Creek (P)(03421)
USGS Basin & Sub-watershed No.:	(07140104-080008)

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

FACILITY DESCRIPTION

Outfall #001 – Sewer Company - SIC #4952
Lift station/flow equalization/sequence batch reactor/filtration/ultraviolet disinfection/aerated sludge holding tank/sludge disposal is by land applied.
Design population equivalent is 3000.
Design flow is 300,000 gallons per day.
Design sludge production is 84.0 dry tons/year.

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law.

Effective Date

Stephen M. Mahfood, Director, Department of Natural Resources
Executive Secretary, Clean Water Commission

Expiration Date

Mohamad Alhalabi, P.E., Director, St. Louis Regional Office

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001						
Flow	MGD	*		*	once/day	24 hr. total
Biochemical Oxygen Demand$_5$	mg/L		15	10	once/month	24 hr. composite
Total Suspended Solids			20	15	once/month	24 hr. composite
pH – Units	SU	**		**	once/month	grab
Ammonia as N	mg/L				once/month	grab
(May – October)		2.2		1.1		
(November – April)		3.7		1.9		
Fecal Coliform	#/100mL	1000		400	once/month	grab

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE _____.

Whole Effluent Toxicity (WET) Test	% Survival	See Special Conditions	once/year in July	24 hr. composite

MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE _____. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Parts I, II & III STANDARD CONDITIONS DATED October 1, 1980 and August 15, 1994, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

* Monitoring requirement only.

** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.0-9.0 pH units.

C. SPECIAL CONDITIONS

1. This permit may be reopened and modified, or alternatively revoked and reissued, to:
   (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
      (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
      (2) controls any pollutant not limited in the permit.
   (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to maintain compliance with Missouri's Water Quality Standards.
   (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving water which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also referred to as the 303(d) list.

   The permit as modified or reissued under this paragraph shall also contain any other requirements of the Clean Water Act then applicable.

2. All outfalls must be clearly marked in the field.

3. Permittee will cease discharge by connection to areawide wastewater treatment system within 90 days of notice of its availability.

4. Changes in Discharges of Toxic Substances

   The permittee shall notify the Director as soon as it knows or has reason to believe:
   (a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"
      (1) One hundred micrograms per liter (100 µg/L);
      (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
      (3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
      (4) The level established in Part A of the permit by the Director.
   (b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.

5. Report as no-discharge when a discharge does not occur during the report period.

C. SPECIAL CONDITIONS (continued)

6. Water Quality Standards
   (a) Discharges to waters of the state shall not cause a violation of water quality standards rule under 10 CSR 20-7.031, including both specific and general criteria.
   (b) General Criteria. The following general water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:

      (1) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
      (2) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
      (3) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
      (4) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;

      (5) There shall be no significant human health hazard from incidental contact with the water;
      (6) There shall be no acute toxicity to livestock or wildlife watering;
      (7) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
      (8) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.

7. Sludge and Biosolids Use For Domestic Wastewater Treatment Facilities
   (a) Permittee shall comply with the pollutant limitations, monitoring, reporting, and other requirements in accordance with the attached permit Standard Conditions.
   (b) Permittee is authorized to land apply biosolids. Permit Standard Conditions, Part III shall apply to the land application of biosolids. The department may require submittal of a biosolids management plan for department review and approval as determined appropriate on a case-by-case basis.

8. This treatment facility is required to be operated by a person having a wastewater competency certificate of at least a “B” level.

C. SPECIAL CONDITIONS (continued)

9. Whole Effluent Toxicity (WET) tests shall be conducted as follows:

SUMMARY OF WET TESTING FOR THIS PERMIT				
OUTFALL	A.E.C. %	FREQUENCY	SAMPLE TY	MONTH
#001	100%	Annually	24 h Compos	July

a. Test Schedule and Follow-Up Requirements

(1) Perform a single-dilution test in the month and at the frequency specified above.

If the effluent passes the test, do not repeat the test until the next test period. Submit results with the annual report.

If the effluent fails the test, a multiple dilution test shall be performed within 30 days, and weekly thereafter, until one of the following conditions are met:

(a) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.
(b) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.

(2) The permittee shall submit a summary of all test results for the test series to the WPCP, Planning Section, P.O. Box 176, Jefferson City, MO 65102 within 14 days of the third failed test. DNR will contact the permittee with initial guidance on conducting a toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE). The permittee shall submit a plan for conducting a TIE or TRE to the Planning Section of the WPCP within 60 days of the date of DNR's letter. This plan must be approved by DNR before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.

(3) Upon DNR's approval, the TIE/TRE schedule may be modified if toxicity is intermittent during the TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.

(4) If a previously completed TIE has clearly identified the cause of toxicity, additional TIEs will not be required as long as effluent characteristics remain essentially unchanged and the permittee is proceeding according to a DNR approved schedule to complete a TRE and reduce toxicity. Regularly scheduled WET testing as required in the permit, without the follow-up requirements, will be required during this period.

(5) In addition to the WET test summary report required in part (2), all failing test results shall be reported to DNR within 14 days of the availability of the results.

(6) All WET test results for the reporting period shall be summarized and submitted to DNR by the end of the following October. When WET test sampling is required to run over one DMR period, each DMR report shall contain information generated during the reporting period.

C. SPECIAL CONDITIONS (continued)

9. Whole Effluent Toxicity (WET) (continued)

b. PASS/FAIL procedure and effluent limitations

(1) To pass a single-dilution test, mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level; p = 0.05) than that observed in the upstream receiving-water control sample. The appropriate statistical tests of significance shall be those outlined in the most current USEPA acute toxicity manual or those specified by the MDNR.

(2) To pass a multiple-dilution test:

(a) the computed percent effluent at the edge of the zone of initial dilution, Acceptable Effluent Concentration (AEC), must be less than three-tenths (0.3) of the LC50 concentration for the most sensitive of the test organisms; or,
(b) all dilutions equal to or greater than the AEC must be nontoxic. Failure of one multiple-dilution test is an effluent limit violation.

c. Test Conditions

(1) Test species: Ceriodaphnia dubia and Pimephales promelas (fathead minnow). Organisms used in WET testing should come from cultures reared for the purpose of conducting toxicity tests and should be cultured in a manner consistent with the most current USEPA guidelines. All test animals should be cultured as described in EPA-600/4-90/027.

(2) Test period: 48 hours at the "Acceptable Effluent Concentration" (AEC) specified above.

(3) When dilutions are required, upstream receiving stream water shall be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 10%, "reconstituted" water will be used as dilution water. Procedures for generating reconstituted water will be supplied by the MDNR upon request.

(4) Tests should be initiated immediately after the sample is collected, but tests must be initiated no later than 36 hours after sample collection.

(5) Single-dilution tests will be run with:

(a) Effluent at the AEC concentration;
(b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
(c) reconstituted water.

(6) Multiple-dilution tests will be run with:

(a) 100%, 50%, 25%, 12.5%, and 6.25% effluent, unless the AEC is less than 25% effluent, in which case dilutions will be 4 times the AEC, two times the AEC, AEC, 1/2 AEC and 1/4 AEC;
(b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
(c) reconstituted water.

(7) If reconstituted-water control mortality for a test species exceeds 10%, the entire test will be rerun.

SUMMARY OF TEST METHODOLOGY FOR WHOLE-EFFLUENT TOXICITY TESTS

Whole-effluent-toxicity test required in NPDES permits shall use the following test conditions when performing single or multiple dilution methods. Any future changes in methodology will be supplied to the permittee by the Missouri Department of Natural Resources (MDNR). Unless otherwise specified by MDNR, procedures should be consistent with Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, EPA/600/4-90/027.

Test conditions for Ceriodaphnia dubia:

Test duration:	48 h
Temperature:	25 ± 2°C
Light Quality:	Ambient laborat[illegible]illumination
Photoperiod:	16 h light, [illegible]ark
Size of test vessel:	30 mL (mi[illegible]m)
Volume of test solution:	15 mL [illegible]imum)
Age of test organisms:	<24 [illegible]ld
No. of animals/test vessel:	5
No. of replicates/concentration:	
No. of organisms/concentration:	[illegible]min[illegible]m)
Feeding regime:	[illegible]feed prior to test)
Aeration:	None
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Mortality (Statistically significant difference from upstream receiving water control at $p \leq 0.05$)
Test acceptability criterion:	90% or greater survival in controls

Test conditions for (Pimephales promelas):

Test duration:	48 h
Temperature:	25 ± 2°C
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light/ 8 h dark
Size of test vessel:	250 mL (minimum)
Volume of test solution:	200 mL (minimum)
Age of test organisms:	1-14 days (all same age)
No. of animals/test vessel:	10
No. of replicates/concentration:	4 (minimum) single dilution method 2 (minimum) multiple dilution method
No. of organisms/concentration:	40 (minimum) single dilution method 20 (minimum) multiple dilution method
Feeding regime:	None (feed prior to test)
Aeration:	None, unless DO concentration falls below 4.0 mg/L; rate should not exceed 100 bubbles/min.
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Mortality (Statistically significant difference from upstream receiving water control at $p \leq 0.05$)
Test Acceptability criterion:	90% or greater survival in controls

Missouri Department of Natural Resources
Water Protection Program
Water Pollution Control Branch
NPDES Permits & Engineering Section

Water Quality Review Sheet

Determination of Effluent Limits

Facility Information

FACILITY NAME: Yorktown Village WWTF (Proposed) NPDES #: N/A

FACILITY TYPE/DESCRIPTION: 0.3 MGD sequencing batch reactor (SBR) w/ flow equalization, sludge digestion, & UV disinfection

ECOREGION: Ozark Highlands (Central Irregular Plains, Mississippi Alluvial Plains) 8-DIGIT HUC: 07140104 (Osage Plains, Ozark Highlands) COUNTY: Jefferson

LEGAL DESCRIPTION: NE SW Sec. 26, T43N, R4E LATITUDE/LONGITUDE: +3825595/-09032338

WATER QUALITY HISTORY: None; new facility

Outfall Characteristics

OUTFALL	DESIGN FLOW (CFS)	TREATMENT TYPE	RECEIVING WATERBODY	OTHER
001	0.465	Sequencing Batch Reactor	Bear Creek	

Receiving Waterbody Information

WATERBODY	CLASS	7Q10 (CFS)	*DESIGNATED USES	OTHER CHARACTERISTICS
Bear Creek	U	0.0	None	Losing Stream
Bear Creek	P	0.1	LWW, AQL	WBID: 3421

*Cool Water Fishery (CLF), Cold Water Fishery (CDF), Irrigation (IRR), Industrial (IND), Boating & Canoeing (BTG), Drinking Water Supply (DWS), Whole Body Contact Recreation (WBC), Protection of Warmwater Aquatic Life and Human Health (AQL), Livestock & Wildlife Watering (LWW)

COMMENTS: Outfall latitude/longitude coordinates approximated from 7.5' USGS topo map; Bear Creek is losing downstream of the proposed discharge location. As proposed, Yorktown Village WWTF will eliminate Bear Creek Estates MHP (MO-0103233) and Crest Manor MHP (MO-0084450) WWTFs.

WQRS and associated water quality based effluent limits (WQBELs) developed to reflect water quality impact study and model results submitted by Fribis Engineering, Inc. for Lindbergh Properties.

MIXING CONSIDERATIONS

Mixing Zone (MZ). Bear Creek is unclassified at the proposed discharge location, therefore no mixing zone is allowed. Acute criteria apply per 10 CSR 20-7.031(3)(I)1. and chronic criteria must be met in the classified portion of Bear Creek.

Zone of Initial Dilution (ZID). Not allowed; Bear Creek is unclassified at the proposed discharge location and acute criteria must be met end-of-pipe.

Permit Limits And Information

TMDL Watershed: (Y or N) [N] W.L.A. Study Conducted: (Y or N) [Y] Disinfection Required: (Y or N) [Y] Disinfection Waiver: (Y, N, NA) [NA]

OUTFALL# 001

Wet Test (Y or N): [Y] Frequency: [Once/year] A.E.C. [100%] Limit: [No significant mortality]

PARAMETER	Units	Maximum Daily Limit	Weekly Average Limit	Average Monthly Limit	Monitoring Frequency
Flow		*		*	Daily
Biochemical Oxygen Demand (BOD_5)	mg/L		15	10	Once/Month
Total Suspended Solids	mg/L		20	15	Once/Month
pH	SU	6 – 9		6 – 9	Once/Month
Ammonia as N (May 1 – Oct 31)	mg/L	2.2		1.1	Once/Month
Ammonia as N (Nov 1 – Apr 30)	mg/L	3.7		1.9	Once/Month
Fecal Coliform	Note 1	1000		400	Once/Month

Note 1 – Colonies/100 mL, * – Monitoring Requirement Only

Receiving Water Monitoring Requirements

No receiving water monitoring requirements recommended at this time. Should water quality impacts be observed as a result of this discharge, instream monitoring may be required.

Derivation and Discussion of Limits

Wasteload allocations were calculated using water quality criteria or model results and the dilution equation below:

$$C = \frac{(C_s * Q_s) + (C_e * Q_e)}{(Q_e + Q_s)}$$ (EPA/505/2-90-001, Section 4.5.5)

Where C = downstream concentration
C_s = upstream concentration
Q_s = upstream flow (cfs)
C_e = effluent concentration
Q_e = effluent flow (cfs)

Chronic wasteload allocations were determined using applicable chronic water quality criteria (CCC: criteria continuous concentration) and stream volume of flow at the edge of the mixing zone (MZ). Acute wasteload allocations were determined using applicable acute water quality criteria (CMC: criteria maximum concentration) and stream volume of flow at the edge of the zone of initial dilution (ZID).

Water quality based maximum daily and average monthly effluent limitations were calculated using methods and procedures outlined in USEPA's "Technical Support Document For Water Quality-based Toxics Control" (EPA/505/2-90-001).

- **Biochemical Oxygen Demand (BOD_5)**. Lindbergh Properties, development firm for Yorktown Village, contracted with Fribis Engineering, Inc. to conduct a water quality impact study and submit recommended wasteload allocations to the department for review and consideration. The results of the water quality impact study and QUAL2E modeling indicate a BOD_5 wasteload allocation (WLA) of 10 mg/L, along with an ammonia as nitrogen WLA of 1.35 mg/L, is expected to prevent dissolved oxygen excursions below applicable criteria during the summer. These results can be found in the document and data entitled "Water Quality Impact Study, Bear Creek, Jefferson County, Missouri" (October 16, 2003 and amended November 5, 2004 per staff comment).

  The BOD_5 wasteload allocation predicted by the Fribis Engineering, Inc. water quality model is similar to that prescribed by regulation for losing streams [10 CSR 20-7.015(4)(B)1.] Given that Bear Creek is a losing stream and the model predicts sufficient instream dissolved oxygen at 10 mg/L BOD_5, staff recommend BOD_5 = 10 mg/L monthly average and 15 mg/L weekly average effluent limits.

- **Total Suspended Solids (TSS)**. 15 mg/L monthly average, 20 mg/L weekly average [10 CSR 20-7.015(4)(B)2.]

- **pH**. pH shall be maintained in the range from six to nine (6 – 9) standard units [10 CSR 20-7.015(4)(B)3.]

- **Ammonia as Nitrogen**. Ammonia criteria for waters designated as general warm-water fishery apply [10 CSR 20-7.031, Table B]. The water quality impact study conducted by Fribis Engineering, Inc. indicates a WLA of 1.35 mg/L for the summer and 2.21 mg/L for the winter should be protective of water quality in Bear Creek.

Season	Temp (°C)	pH (SU)	Total Ammonia CCC (mg/L)	Total Ammonia CMC (mg/L)
Summer	26	7.8	1.2	14.0
Winter	6	7.8	2.1	16.4

Summer: May 1 – October 31, Winter: November 1 – April 30

$C_e = ((Q_e + Q_s)C - (Q_s * C_s))/Q_e$

Summer

WLA = 1.35 mg/L

LTA_c = 1.35 mg/L (0.527) = 0.7 [CV = 0.6, 99th Percentile]

MDL = 0.7 * 3.11 = 2.2 mg/L [CV = 0.6, 99th Percentile]
AML = 0.7 * 1.55 = 1.1 mg/L [CV = 0.6, 95th Percentile, n = 4]

Winter

WLA = 2.21 mg/L

LTA_c = 2.21 mg/L (0.527) = 1.2 [CV = 0.6, 99th Percentile]

MDL = 1.2 * 3.11 = 3.7 mg/L [CV = 0.6, 99th Percentile]
AML = 1.2 * 1.55 = 1.9 mg/L [CV = 0.6, 95th Percentile, n = 4]

Season	Maximum Daily Limit (mg/L)	Average Monthly Limit (mg/L)
Summer	2.2	1.1
Winter	3.7	1.9

- **Fecal Coliform**. 400 colonies/100 mL monthly average, 1000 colonies/100 mL daily maximum [10 CSR 20-7.015(4)(B)4.]

Reviewer: John Hoke
Date: 11/8/04
Unit Chief: Richard J. Laux

Monitoring and effluent limits contained within this document have been developed in accordance with EPA guidelines using the best available data and are believed to be consistent with Missouri's Water Quality Standards and Effluent Regulations. If additional water quality data or anecdotal information are available that may affect the recommended monitoring and effluent limits, please forward these data and information to the author.